SUMMARY: MPM STRATEGIC PLAN 2003-2008

The Milwaukee Public Museum (MPM) ranks among America's premier natural history museums. Since its founding in 1882, MPM has excelled in innovative exhibits and educational programs, grounded in the MPM's scholarly research, to inform the diverse audiences served by the institution. MPM's collections, comprising 6.2 million artifacts and specimens, are today valued at $750 million, and the building complex at $250 million. MPM provides over one million visitors annually with easy access to its unique educational assets and to timely temporary exhibits, as well as to visitor amenities including its restaurant, gift stores (on site and throughout the state) and Wisconsin's only IMAX theater. Additionally, MPM's outreach programs offer educational opportunities to school children and the general public alike.

Among the various functional and divisional areas, there is consensus about MPM's strengths: devoted employees; loyal and valued volunteers; high market penetration; a large and growing membership; diversified earned and contributed revenue streams; a program mix addressing topical issues; public and private support; collections; original research in some areas; exhibits; the Humphrey IMAX Dome Theater; productive collaborations with other institutions; and a positive public perception.

Similarly our challenges are widely recognized: becoming more responsive to our audiences; the need to increase contributed support for operations and for building an endowment; finding new earned revenue sources; stabilizing and clarifying the nature of the evolving public/private relationship with Milwaukee County; an aging and inadequate building and visitor amenities; recruitment, motivation and retention of staff and volunteers; and the need to invest in the professional growth of employees to assure success and excellence in all areas.

The Milwaukee Public Museum's Strategic Plan for 2003-2008 focuses on four main areas of strategic change: 1) becoming more visitor-centered; 2) creating excellence in collections and research; 3) increasing the financial strength of the institution; and 4) improving organizational effectiveness in achieving the mission at all levels. Within each of these areas a series of specific objectives have been identified, and detailed actions plans with accompanying budgetary and staffing requirements developed.

STRATEGIC OBJECTIVE 1: BECOMING MORE VISITOR-CENTERED

1.1 Systematically upgrade permanent exhibits and formulate strategic criteria for selecting new exhibits and retiring old ones.

1.2 Apply a standard of evaluation to temporary exhibitions that encompasses mission, education, financial viability and appropriateness of topic, to create an exhibit schedule set at least 3 years in advance

1.3 Develop new approaches to visitor learning to excite the imagination and inform the intellect, including the use of instructional technologies, teacher engagement in design and delivery, audience-specific interpretation and deeper learning opportunities

1.4 Engage MPM's audiences in the development of programs, services and exhibits

1.5 Develop and redefine partnerships with schools (local and statewide), universities, museums and other public-service organizations, that effectively utilize MPM's educational and curatorial capabilities

STRATEGIC OBJECTIVE 2: CREATING EXCELLENCE IN COLLECTIONS AND RESEARCH

2.1 Require, develop and consistently apply standards of curatorial excellence in scholarly productivity, funded research, and professional service

2.2 Provide endowments to attract and keep the most productive curators and support substantive research.

2.3 Promote digitization, inventory, and care of MPM collections.

2.4 Create a visiting scholars program that permits MPM curators to collaborate nationally and internationally, which supports MPM collections and research, education and exhibit development

2.5 Foster interdisciplinary research, scholarly communication and academic accountability through reorganization of CRE administrative units

STRATEGIC OBJECTIVE 3: INCREASING FINANCIAL HEALTH

3.1 Secure funds from federal, national and regional granting agencies to support growth in research, exhibition, educational programs, collections care, and conservation, reaching annual grant-funded levels of $1 million by 2005

3.2 Achieve annual private contributed support which increases to $6 million by 2005
3.3 Aggressively pursue endowment funds through planned giving and as a component of future capital campaigns
3.4 Stabilize and diversify long-term government funding; renegotiate the lease and management agreement with Milwaukee County
3.5 Invest resources in the understanding of various audiences and their needs, and in the effective marketing of the institution to drive visitation and revenue to the Museum and to IMAX
3.6 Develop a revenue-generating traveling exhibit program that has the purpose of sharing MPM expertise and showcasing MPM activities with other museums around the state. the nation and the globe
3.7 Pursue earned income opportunities that provide positive cash flow returns to the museum and that are in keeping with the overall strategic mission of the museum--These will include, but will not be limited to, retail ventures, new food concepts, catering, product licensing, and joint business ventures consistent with our goals

STRATEGIC OBJECTIVE 4: IMPROVE ORGANIZATIONAL EFFECTIVENESS

4.1 Develop performance standards for all employees which foster an ethic of excellence in all areas of museum operations, and that employees, their co-workers and managers hold one another accountable for meeting
4.2 Ensure the effectiveness and the appropriateness of all current and planned positions, including job descriptions and qualifications in relation to the mission and strategic plan of MPM
4.3 Develop and implement processes and programs to select, evaluate, and develop managerial leadership capable of meeting the varied and complex challenges facing MPM. Enhance opportunities for staff involvement in decision-making, and create open lines of communication based on principles of transparency and honesty among all levels of employment
4.4 Improve MPM's technological infrastructure and streamline information transfer and sharing among staff and interested parties, and implement an institution-wide technology plan supporting collections digitization, distance learning, and streamlined reporting.
4.5 Review existing collections, exhibits and programs to assess how each can be used most effectively in advancing the Museum's mission
4.6 Critically examine the issue of space utilization and facility planning, to best utilize existing space and address issues of deferred maintenance, crowding of staff and collections, and inadequate space for either new permanent exhibits or enhanced visitor amenities
4.7 Identify and plan for future building expansion to address the need for new, exciting exhibits; for parking and other amenities; for enhanced collections and research needs; and for innovative education and public programs; and clarify the roles of various sponsors in assuring adequate levels of support for the physical infrastructure of MPM

Those values that are implicit in this plan and that MPM holds dear are service to our visitors, care of our collections, respect for both internal and external constituencies, a commitment to the pursuit of excellence, pursuit of scientific truth, fiscal integrity, being judiciously entrepreneurial, self reflection and self criticism, and openness to the ideas of others. These are not new values for MPM but instead are ones that we are eager to reaffirm.

This plan's success requires ownership and action on the part of all stakeholders; it must not be merely a series of management objectives. As MPM transforms itself operationally, it must also articulate a clear and compelling vision for use as a thematic yardstick against which progress can be judged and new opportunities weighed. Of greatest importance in realizing our mission is having adequate financial and human resources. MPM must prove its dedication to excellence, seeking national and international prominence through scholarly research, and create innovative vehicles for exhibition and programming.

This strategic plan and its action plans for implementation identify a series of concrete and measurable steps towards creating a stronger institution in the present, and a broader realization of MPM's vision for the future. Some of these steps must be taken over the next two years to stabilize MPM's fiscal health; others, intended to grow MPM, will be attempted at a later date.

(plan adopted MPM Board of Trustees 24 June 2003)

1. PROJECT DESIGN

MPM seeks support for the conversion of its paper-based Anthropology catalogues to electronic format. The Museum's Anthropology collections are considered the Museum's most valuable holdings, and are viewed as internationally significant (the Anthropology collections are described in greater detail in Attachment 1: *MPM Anthropology Scope of Collections*).

For the sake of clarity and brevity the project as whole is discussed here; more detailed discussions of methods, standards and protocols is appended as Attachment 3, *Technical Aspects of Anthropology Catalogue Conversion.* The overall digitization and computerization project consists of eight distinct steps: 1) purchase of KE EMu collections management program, along with auxiliary software modules, new hardware for both users and network support; 2) configuration of custom screens and user-defined features of the program, installation of software, deployment of hardware and software packages at MPM; 3) staff training and development of data control protocols, development of user manuals, and training in restricted vocabularies and lexicons; 4) initiation of electronic cataloguing, management and tracking of loans and conservation records involving new objects; 5) conversion of existing core catalogues and ledger data to electronic form; 6) error trapping and proofing of converted data by MPM staff, revision of data as required, with expanding use of KE for transactional data as catalogues are transferred; 7) additional imaging of existing collections objects and expansion of collections data regarding existing objects, beginning with highest priority collections; and finally 8) retirement of older paper-based catalogue books and ledgers following appropriate microfilming and object conservation. Stages 1-4 have already been completed using MPM funds. Funding from IMLS is respectfully requested to complete stage 5 and 6 of this project.

Catalogue data will be entered into KE EMu, a widely-used collections management system (CMS). KE EMu is Dublin Core, CIDOC and MDA Spectrum compliant, and allows ODBC or other non-proprietary modes of access to assure interoperability and transparency of data access. KE conforms to all applicable museum-based metadata standards, and allows simplified publication of selected fields and data to the web without separate programming or configuration (see also Attachment 3, Section 3.1.4, *Selection of Appropriate Software Platform*).

After lengthy discussions with outside vendors, including both manual keypunch and OCR scanning firms, it was decided that on-site data entry by staff hired for the purpose best suited the institution's objectives and priorities. Offsite conversion would be slightly faster and initial costs would be somewhat less, but any savings in time or money would be more than offset by higher subsequent costs of error trapping and data validation by Museum staff, and by the opportunity to improve cataloguing nomenclature and generate lexicons and authority lists presented by on-site conversion by technicians working directly and iteratively with permanent staff. On-site data entry will also allow more frequent opportunities for course corrections and procedural improvements during the project.

Cards will be keyed directly into KE Emu by data-entry technicians. Four part-time data entry technicians will be used, coordinated by a full-time lead data entry technician charged with coordinating schedules, documenting progress and reporting or resolving problems. The data will be validated and verified through a three-step process involving preliminary review of keystroke accuracy by data entry technicians, electronic review of logical relationships and ranges using automated relational edit-check programs, and final review and revision by permanent staff with deep knowledge of both the collections and the catalogue (see also Attachment 3, Section 3.1.1, *Method of Data Capture*). Object images will be captured as JPEG or TIFF files depending on appropriate levels of compression and intended use, with primary files stored as uncompressed TIFF (as per Illinois Digitization Institute standards), with served images compressed as appropriate (see also Attachment 3, Section 3.1.3, *Imaging Standards*).

We anticipate using students and graduates of the joint MPM-UWM Museum Studies program for much of the data entry, in part based on their familiarity with the collections and in part on their hard-won expertise in converting relatively low quality handwritten data in a variety of fonts, ranging from Spencerian scripts in the 19th century portions of the catalogues to the more complex and idiosyncratic handwriting (and later typewriting) styles of some mid-to-late 20th century curators. Because the data-entry will take place within the Department of Anthropology, confusing, ambiguous or unclear data can be checked both through use of cross-references (catalogue books, location cards, exhibit case files) and through consultation with curatorial and collections staff. Because this is an initial computerization rather than conversion of one set of cleaned, computerized data to another format, opportunities for checks of this kind are particularly important.

Based on experience elsewhere, the most important phase of the project will not be the physical task of converting paper-based records to electronic form, but instead the subsequent verification and validation of these

data. Data will be verified using a variety of techniques to decrease keystroke error rates, and a combination of sight verification and automated relational edit-check programs used to trap and fix keystroke errors (see Attachment 3, Section 3.1.2, *Quality Control and Error Trapping*). Three separate passes (at minimum) will be made through the converted data. The first will be by the data-entry technicians, to capture and correct keypunch errors, omissions or transpositions. The second will use relational edit-check programs to confirm that logical relationships (e.g., one-to-many accession to catalogue entry relations) are correctly reproduced. These will be complimented by the use of data masks and format filters within KE to assure that data is in the appropriate format, and does not exceed defined ranges (e.g., catalogue number values higher than the maximum assigned number). The final pass will be by permanent MPM staff, including the anthropology curators, collections manager, and specific staff from the History, Conservation and Registration sections with particular knowledge of anthropology holdings and catalogue procedures. The most problematic form of errors will be those inherent in the source data itself, which will require curatorial review and resolution on a case-by-case basis. These are not artifacts of the conversion process, but may nevertheless be revealed by the verification routines. Much of the staff time budgeted is for review by curatorial and other permanent staff to identify and remedy errors of this kind.

Permanent staff involved in this final phase of error-trapping will include anthropology curators, collection manager, Registrar, as well as the Senior Conservator and Department Head for History/Curator of Classical Archaeology. The Registrar, Senior Conservator, and Department Head for History/Curator of Classical Archaeology work together regularly with Anthropology on a variety of projects, and all have a deep knowledge of the Museum's Anthropology holdings (see Section 7 below, also Attachment 2, *Additional Details Regarding Staff Qualifications*). Their role in verifying data accuracy and integrity owes less to their current positions than to their extensive experience with and knowledge of the MPM Anthropology holdings. The Department Head for History, for example, holds a curatorial chair in classical archaeology, spent many years in the Anthropology Department, and served as its departmental chair for two terms. The Registrar began her service at MPM in Anthropology, coordinated the last NSF-funded collections inventory in Anthropology, and was trained as an anthropologist with a specialization in the American southwest. And the Senior Conservator received her graduate training at the Institute for Archaeology in London, and has worked extensively with both anthropology holdings elsewhere and the collections and collections records in MPM's Anthropology Department. Each is also integrally involved in the use and revision of the anthropology catalogues as part of their daily duties, and use of these staff is felt to be the most efficient and effective means of ensuring high levels of data validity and usability.

Subsequent to the IMLS-funded portions of the project. MPM staff will expand the databases with additional images, records and cross-indices on a continuing basis. Costs of these ongoing efforts will be incorporated into normal departmental budgets, supplemented by project-based funds for initiatives like the Non-Linear Custom Curriculum project. [1]

2. GRANT PROGRAM GOALS

Perhaps the most immediate (albeit superficial) measure of the degree to which this project meets the stated goals of the Sustaining Cultural Heritage category is that this is precisely the project used as an example of appropriate submissions for the category in last year's Museums for America Guidelines, and in this year's Guidelines the migration of card-based catalogues to electronic form is the first item listed under "Types of Grant Activities Funded" (*Guidelines* 1.7). More substantively, no project is more central to either the Sustaining Cultural Heritage category—or one might argue to the mission of the Museum—than establishing and expanding intellectual control over its holdings, and making information regarding those collections more widely, accurately and engagingly available to diverse audiences. It specifically meets the goals for the Sustaining Cultural Heritage category because it focuses on behind-the-scenes activities of staff in preparing records for digitization, converting existing paper-based

[1] The Non-Linear Custom Curriculum (NLCC) initiative allows visitors to use a combination of physical exhibits, active signage and electronic resources (including digitized collections records and images) to develop unique curricula and visit plans based on their own interests, experience or needs. Each visit might be different, and each exhibit might be interpreted or contextualized in very different ways, in different languages, or for different learning styles.

catalogues to electronic form, and verifying the accuracy of the converted data to better manage and document the Museum's Anthropology collections, among its most prized and significant holdings.

3. HOW THE PROJECT FITS INTO STRATEGIC PLAN AND MISSION

The conversion of the Anthropology collections catalogue from paper-based cards to electronic format is specifically listed as one of the objectives of the Museum's five year strategic plan (Strategic Plan Element 2.3; attached), and is also referenced as a strategic objective within the technology plan (strategic element 4.4, also attached). The project promises to simultaneously advance collections integrity and accessibility, improve programmatic service to a variety of audiences, and to better position the Museum as a center for discourse among and between the many communities we serve—all exemplars of the different categories of the Museums for America competition. We understand that relevance to all three program categories does not confer any competitive advantage to our application. It is noted here only because the project's prominence as a strategic objective for the Museum was based, in part, on its ability to advance strategic objectives in all of these areas at the same time.

Conversion of card-based catalogues to electronic form will allow the Museum to more effectively document, inventory, conserve and manage its internationally recognized anthropology collections, as well as improving the accessibility and utility of these collections for external scholars, exhibitions, educational programs (including the Museum's Non-Linear Custom Curriculum initiative), interpretative uses, public programming initiatives and streamlining consultation with native groups. Finally, the Museum has developed a detailed plan (Long-Range Collections Preservation Plan, or LRCPP) to improve conditions for its collections. Of the 26 highest-priority objectives identified in this IMLS-funded plan, 19 have already been accomplished. Remaining objectives relating to the Anthropology collections benefit from or require the conversion of paper-based records to electronic format as a preliminary step.

Minerva Soucie of the Burns Paiute Tribe recording 19th-century Paiute basketmaking techniques from MPM collections

At the risk of stating the obvious, all of these plans and initiatives are framed to advance the Museum's mission, "to interpret the world's cultural and natural heritage through the integration of exhibits, education, collections and research. The Museum holds its collections as a public trust, and is dedicated to their preservation for the enrichment of present and future generations." The primary impact of the project will be increased intellectual control over the MPM cultural collections, and as a result the capacity to better manage the collections, increase their accessibility to a broad public, interpret them more effectively through physical and virtual exhibits and related programming, and thereby introduce the Museum's cultural collections to new audiences—thereby "integrating exhibits, education, collections and research." As a secondary impact, computerization will lay the groundwork for subsequent stages of the broader cultural collections plan, compiling an object inventory and assessment as part of a general rehousing of cultural collections and renovation of storage spaces. As a whole, this plan balances the contradictory demands of conservation and interpretation, offering audiences access to the collection while reducing handling, keeping fragile organic objects in high-quality, low-light storage environments while simultaneously encouraging widespread viewing, making greater use of collections assets yet still taking much better care of them, and offering multiple audiences the ability to answer complex and detailed questions about the collections objects without overloading existing staff. This serves the public trust, and helps preserve the collections "for the enrichment of present and future generations."

4. STRATEGIC PLAN: PROCESS AND FINANCIAL RESOURCES

The Museum's current strategic plan was begun in 2002 with a series of planning meetings by senior staff and selected representatives of all operational areas of the Museum. Based on brainstorming sessions during these meetings a series of four key strategic areas were identified for emphasis over the next five to seven years (the final

result was a five-year plan for 2003-2008). These four very broad categories (Becoming Visitor-Centered, Creating Excellence in Collections and Research, Increasing the Financial Health of the Institution, and Improving Organizational Effectiveness) were then examined by work groups from all affected departments, who broke the initial categories into more specific elements (see appended 2-page summary of the strategic plan). For each element a specific action plan, specifying goals, measures and necessary resources (human and financial) was developed, reviewed and revised. Executive summaries of two such plans specifically relating to collections digitization are appended as attachments 4 (Element 2.3, *Digitization of Collections*) and 5 (Element 4.4, *MPM Technology Plan*). Throughout this process the original planning group (the Strategic Planning Steering Committee, or SPSC) continued to meet, chaired by the MPM President, to coordinate the activities of the various work groups, ensure complete coverage, and minimize redundancy. Drafts of each action plan were posted on the Museum's intranet for examination and comment; comments and revisions could be viewed by all staff members. The SPSC and later MPM senior staff reviewed the plan and abstracted a sequence of annual objectives based on either strategic prioritization of action plans or critical path analysis of which action plans were necessary premises for others; as one example, digitization of collections is a necessary precursor to programmatic objectives assuming online collections access. These plans are living documents, and a round of revisions to reflect accomplishments and changing circumstances is currently underway.

While faced by the same chilly economic climate as other museums, MPM has been relatively successful in maintaining a strong financial base for pursuing its strategic objectives. Until the 1970s the Museum was part of the City of Milwaukee; from then until 1992 it was an arm of County government. In 1992 it privatized, and since that time it has more than tripled in size of both staff and budget, being recognized as one of the more successful examples of public-private partnerships. The Museum has maintained a balanced operating budget for the last decade, and last year had total revenues of approximately $26.6 million (FY04). Budget allocations reflect strategic priorities outlined in the Strategic Plan; within Collections & Research these included increased salaries for staff based on renegotiated job descriptions and expectations, acquisition of needed instrumentation including a variable pressure scanning electron microscope (SEM), and acquisition and configuration of the KE EMu collections management system (CMS) to support digitization of the Museum's priceless cultural collections.

5. APPROPRIATENESS OF PROJECT FOR INSTITUTION, AUDIENCE

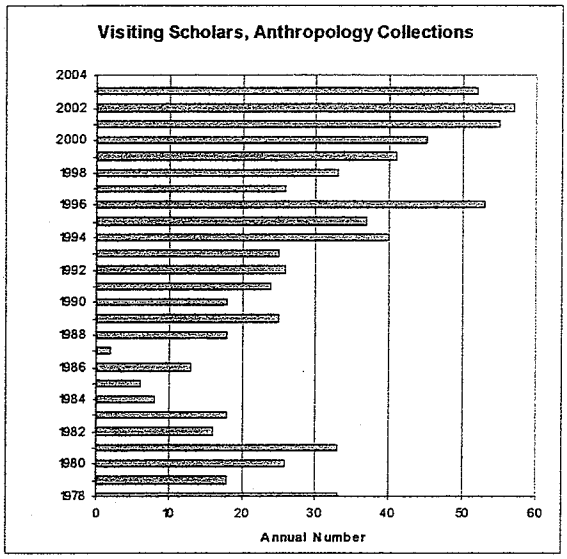
MPM attracted 622,119 visitors last year, including nearly 250,000 schoolchildren and visits by more than 20,000 member families. When combined with related facilities sharing the same space (the MPM/Humphrey IMAX Theatre and the Discovery World Museum) visitation exceeds 1.2 million visitors annually. Visitor demographics correspond closely with the underlying demographic structure of southeastern Wisconsin. Through the NLCC project, all physical visitors will benefit from the digitization of key institutional holdings. And since the anthropology holdings are not currently available online, completion of the project will make them available to audiences worldwide through the publication of selected fields and records to the web.

Beyond these generalized benefits to all visitors, specific audiences of strategic importance to the Museum will particularly benefit from this project: 1) peer museums, who extensively use the Museum's anthropology collections; 2) external scholars, who both use the museum's collections and collaborate with MPM staff in their studies; and 3) native communities, both through NAGPRA consultations and to document and rediscover aspects of traditional material culture and history.

The breadth of institutions borrowing MPM collections is indicative of the national stature of MPM's anthropological holdings; borrowers within the past five years include the Smithsonian Institution, the Field Museum, the American Federation of Arts, the Minneapolis Institute of Art, the Eiteljorg Museum, the Atlanta History Center, the Vancouver Art Gallery, James Ford Bell Museum, Delaware Museum of Natural History, the Gerald Ford Presidential Library, Cleveland Museum of Natural History, the Bergstrom Mahler Museum, Peabody Museum (Yale), San Diego Museum of Natural History, University of Regina (Saskatchewan), Art Institute of Chicago, John Michael Kohler Art Center, Waterloo Museum of Art, the Gilcrease Museum, and the Wheelwright Museum, among others. MPM is also extremely active in supporting exhibition programs of other museums in the state, and has contributed objects to exhibitions mounted by the Milwaukee Art Museum, the Wisconsin Historical Museum/Wisconsin State Historical Society, the Neville Museum, the University of Wisconsin, the Pabst Mansion, University of Wisconsin-Milwaukee, Oconomowoc Historical Society, Kenosha Public Museum, the Medical College

of Wisconsin, Wriston Art Center Galleries, Lawrence University, and Door County Maritime Museum, as well as providing object loans for the development of the Forest County Potawatomi Tribal Museum. MPM's anthropological collections also support traveling exhibitions reaching hundreds of thousands of visitors annually, including cradleboards for the Haffenreffer's six venue exhibit *Gifts of Pride and Love: Kiowa and Comanche Cradleboards,* Lacandon Mayan ceramics for the Field Museum's national eleven venue tour of *Chocolate*, and archaeological objects for the Art Institute of Chicago's *Hero Hawk and Open Hand* multiple venue show, among others.

MPM cultural collections are widely used by external scholars, and are nationally recognized as a major resource for collections-based research in anthropology. The accompanying graph shows external scholarly research use of the anthropology collections by year for the period 1978-2004, and understates totals by counting several groups of visiting scholars as single entities. Except by using a series of published collections catalogues—some dating to the 1920s, and all incomplete as new objects or collections are acquired—the more than 500 visiting scholars during this period were unable to access information regarding MPM collections without extensive prior staff consultations or on-site visits. Needs assessments since an NSF-funded inventory in the late 1980s have consistently indicated that an accessible, online catalogue of MPM anthropology holdings should be a top institutional priority. Conversion of catalogues to electronic form will significantly improve the accessibility of these collections and associated data, and make this resource more readily available worldwide. Research into donor histories and into collections shared across multiple sections has also been hampered by cumbersome manual cross-referencing systems, and the inability to perform more general searches. A simple request—for instance, a listing of all materials provided by a given donor—requires a compilation of all accession numbers associated with a donor file, generation of a separate list of all catalogue numbers associated with each accession, then a listing of entries from the individual catalogues, all performed manually. As noted previously, computerization and digitization will render the complexity of past cataloguing schemes transparent to staff, scholars and other visitors, whether local or remote. Simply stated, it will directly improve the ability of staff and scholars to use and access the collections and the data that give them meaning, and indirectly benefit all of the audiences the Museum serves.



MPM is proud of its progressive approach to tribal consultation and repatriation, and initiated the return of certain classes of objects prior to the passage on the Native American Graves Protection and Repatriation Act in 1990. Within the past several years, MPM has repatriated collections or objects to the Menominee, Arizona's Gila River Indian Community, and the White Mountain Apache Tribe of Arizona. Since the Act's passage, MPM has provided collections summaries and inventories to more than 580 tribes and native organizations, and continues to actively consult with tribes and provide more detailed, object-by-object descriptions (with object drawings and annotations) to groups on an ongoing basis.[2] Currently MPM is part of a pilot database project conducted by the National Park Service for the national NAGPRA Review Committee to resolve issues surrounding the disposition of cultural unaffiliated human remains. Because these data are not available electronically, the staff time required to comply with each request is considerable, and the ability to conduct complex, conditional searches extremely limited. Beyond the actual costs incurred by the institution in meeting these requests—in 1995 MPM's then-president, William J. Moynihan, testified before Congress that MPM would have spent more than half a million dollars on NAGPRA compliance by 1997, with efforts continuing at a similar pace through 2004—NAGPRA activities have significantly impacted the ability of Anthropology Section staff to conduct their own research and programming. Congressional testimony also identified the absence of computerized databases as a contributing factor to the cost of NAGPRA compliance.

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[2] MPM remains committed to broader principles of ethical collecting, and consults with groups outside the immediate legal scope of NAGPRA. For instance, MPM is currently in discussions with the National Museum of New Zealand/Te Papa regarding the disposition of Maori human remains, and MPM is also a participant in the AAM's Nazi-Era Provenance Portal.

Each of these strategically important audiences will benefit directly from the proposed project. As noted above, however, MPM gave this project a high priority precisely because we feel it benefits all of our current and targeted audiences in different ways and to varying degrees.

6. PROJECT RESOURCES: TIME AND BUDGET

Prior experience indicates that, given the relative simplicity of the card-based datasets, data entry technicians should average around two minutes per card, or 30 cards an hour. To be conservative, and allow time for consultation with other staff regarding ambiguous or problematic data, budgeted entry rates are slightly slower. In order to move the project forward aggressively Four part-time data entry technicians are proposed, coordinated by a full-time lead technician, allowing entry and verification of all Anthropology catalogue records within a thirteen-month period, beginning in August, 2005, and ending in September, 2006. A series of breakpoints are planned to allow project participants to review progress, make any necessary course corrections, and streamline or improve procedures on an ongoing basis (see schedule of completion). If data entry proceeds more quickly than anticipated, technicians will begin adding additional images and ancillary records to enhance the digital content of each record.

This schedule allows for ongoing evaluation and correction; given that the project calls for the conversion of paper-based records to electronic form there is relatively little difference between outcome and output based assessments. In both, project progress can be measured by progress in conversion measured by number of cards successfully converted, by number of records verified and validated during the crucial error-trapping phase, and by the mean error rate for the conversion process. Impact on audience can be measured both by the number of hits on the online records, and by changes in the number of NAGPRA consultations completed, loans approved, and visiting scholars accessing the collections.

Project costs are modest; salary rates for data entry technicians assume a wage of $10/hr; benefit costs are relatively low as experience elsewhere suggests that data entry with minimal errors cannot be sustained by anyone other than experienced keypunch professionals for more than 4 hours/day, and hence technicians will work part-time. The lead data entry technician will receive $12/hr as a full time employee, with a more robust benefit package. These technicians will convert the backlog of old catalogue records to electronic format; new records will be created and maintained by permanent staff. Staff costs are based on actual salaries for staff directly involved in project supervision or data validation and verification. As noted below (*Section 7*) and in attachment 2 (*Additional Details Regarding Staff Qualifications*), staff involved in data validation and data verification have extensive knowledge of the MPM anthropology collection. Computer costs are based on purchase price plus a set institutional multiplier for support costs pro-rated for the project duration (current support multipliers assume a five-year use life, project costs thus use one-fifth of the calculated costs). Indirect costs are based on federally-negotiated current rates. Hard cost matches are limited only because the majority of hard cost expenses (e.g., purchase of KE EMu at more than $60k, KE training and configuration, hardware costs for client workstations, purchase of digital cameras and scanners, network infrastructure and CAT6e cabling, etc., totaling well over $100,000) are unallowable because they were incurred before the nominal project start date.

7. PROJECT RESOURCES: PERSONNEL AND TECHNOLOGY

Project staff is highly qualified and has the requisite experience to complete the project. A more complete description of individual qualifications is appended as attachment 2, *Additional Details Regarding Staff Qualifications*; please also see attached 2 page CVs for project staff. Technical aspects of the proposal are summarized on the digitization project worksheet and as attachment 3, *Technical Aspects of Anthropology Catalogue Conversion.* Here we focus on a few salient personnel details.

The project director chairs the MPM Anthropology Department, and also serves as MPM Vice President for Collections & Research, ensuring that he can coordinate and allocate resources and expectations appropriately to complete the project goals without compromising other institutional initiatives. IS is represented by the Director for IS, who is also involved in coordinating MPM digitization efforts, as well as serving on a panel developing a statewide initiative for museum and library collection digitization. Again, this will guarantee that IS resources are deployed efficiently to assure timely completion of the project. The MPM Senior Conservator and IS Director have

previously trained together in digitization protocols through the highly regarded "School for Scanning," and are also collaborating on a separate project to digitize MPM's ethnobotanical collection. Remaining Anthropology staff average more than fifteen years' tenure in their respective positions, giving them a deep knowledge of and experience with the Anthropology collections and the occasional vagaries of its cataloguing system, and the Collections Manager has more than a decade's experience in managing interns (for the entire Museum, not just Anthropology), work-study students and temporary, part-time staff. While the project director will manage the project as a whole, separate coordinators will lead each phase. The data entry and initial verification phase will be managed by a full-time lead data entry technician (job description attached), who will coordinate schedules, document progress, and identify and report problems. The automated edit-check will be coordinated by the Director of IS, and the Senior Conservator—recognized for her organizational and motivational skills--will coordinate the final validation and verification review y permanent staff.

Efforts in this area will not detract from participants' other duties; indeed, because of the strategic importance attached to this initiative by MPM, these tasks are central expectations established as part of the annual goals and objectives for the coming year developed in consultation with senior staff. As noted above (Section 6; *Project Resources: Time and Budget*) the project will increase institutional capacity, both by providing a much-needed resource in its own right, and freeing up staff time for more appropriate tasks. While the collections are well-catalogued using paper catalogues and cross-references, these are unwieldy and time-consuming to maintain—in fact, the original system we designed in the 1930s as part of relief activities to create jobs—and the new system will reduce staff time dedicated to creation of basic records, and allow staff to instead create more detailed and useful records, while the software creates the cross-referenced backups. Finally, because all data are currently in paper form, even the most basic inquiries regarding collections must be handled by sectional staff. The new system will allow publication of selected fields to either the internet or an MPM intranet, so that most (albeit not all) elementary questions (do you have any Arapaho objects? What are the catalogue numbers for the objects in case 2E24?) can be answered without further staff involvement, freeing them to address more substantive questions and address strategic objectives.

The technological needs of the project are modest. The KE EMu CMS software has been previously purchased by MPM, along with necessary training and hardware (detailed discussion of MPM hardware platforms, network infrastructure, etc., is presented in Attachment 3, *Technical Aspects of Anthropology Catalogue Conversion*). Departmental staff already have client stations for the CMS at their desktops, and the only additional technological components requested are for a convertible notebook for spot-checking data (later to be used in collections storage areas to allow updating of location fields as collections are temporarily moved) and additional image-sever capacity (in the form of a 720gB optical jukebox server; see Attachment 3, *Technical Aspects of Anthropology Catalogue Conversion* , Section 3.3.1) within IS to accommodate the greater imaging traffic as the volume of data on KE increases. KE was selected after an exhaustive review process; KE is also emerging as something of an industry standards among natural history museums, and has already been adopted by the Smithsonian NMNH, American Museum of Natural History, Field Museum, LA County Museum, and Canadian Museum of Civilization, among others. Details regarding the CMS review and selection process are appended as Attachment 3, Section 3.1.4; *Selection of Appropriate Software Platform.* Additional hardware needs are recognized for subsequent stages of the larger project (not the portions for which IMLS support is requested), and will be built into IS and departmental budgets as detailed in the MPM technology Plan, developed as part of the MPM strategic planning process.

MPM has identified digitization as a major strategic priority, and has therefore invested resources accordingly. More than $100k in hard costs have been invested to support digitization and digital accessibility; unfortunately, because these expenses were incurred before the grant period, they do not appear as hard cost matches for the project budget.

We respectfully request IMLS support to complete this important project, which: 1) is the museum's highest priority project, leveraging investments in other strategically-defined areas and serving as necessary precondition for other key objectives in both the Museum's five-year strategic plan and its Long Range Collections Preservation Plan; 2) addresses a recognized need of several major audiences served by the Museum, with ancillary benefits for all of the other communities we serve; 3) appropriately and effectively addresses those needs within a framework that the Museum can reasonably accomplish; and 4) expands the capacity of the Museum, both by adding critical, expandable resources, while at the same time making more efficient use and staff time and expertise.

Project Budget Form

SECTION 1: SUMMARY BUDGET

Name of Applicant Organization Milwaukee Public Museum

IMPORTANT! READ INSTRUCTIONS ON PAGES 3.4–3.5 BEFORE PROCEEDING.

DIRECT COSTS	IMLS	Applicant	Total
SALARIES & WAGES	74,240	140,119	214,359
FRINGE BENEFITS	14,556	47,570	62,126
CONSULTANT FEES			
TRAVEL			
MATERIALS, SUPPLIES & EQUIPMENT	13,540	5,000	18,540
SERVICES		8,000	8.000
OTHER			
TOTAL DIRECT COSTS	$ 102,336	$ 200,689	$ 303,025
INDIRECT COSTS	$ 34,589	$ 67,833	$ 102,422
		TOTAL PROJECT COSTS	$ 405,447

AMOUNT OF CASH-MATCH $ 13,000

AMOUNT OF IN-KIND CONTRIBUTIONS $ 255,522

TOTAL AMOUNT OF MATCH (CASH & IN-KIND CONTRIBUTIONS) $ 268,522

AMOUNT REQUESTED FROM IMLS, INCLUDING INDIRECT COSTS $ 136,925

PERCENTAGE OF TOTAL PROJECT COSTS REQUESTED FROM IMLS 33.7 %
(MAY NOT EXCEED 50%)

Have you received or requested funds for any of these project activities from another federal agency?
(Please check one) ☐ Yes ☑ No

If yes, name of agency _____

Request/Award amount _____

PROJECT BUDGET FORM
SECTION 2: DETAILED BUDGET

Milwaukee Public Museum
Digitization of Anthropology Collections Catalogues

Year 1

Salaries and Wages (Permanent Staff)

Name/Title	No.	Method of Cost Computation	IMLS	Applicant	Total
[redacted]		85000/yr x 30% X 12 mos.	0	25500	25500
		71000/yr x 30% X 12 mos.	0	21300	21300
		50000/yr x 25% X 12 mos.	0	12500	12500
		77000/yr x 25% X 12 mos.	0	19250	19250
		38000/yr x 30% X 12 mos.	0	11400	11400
		46000/yr x 30% X 12 mos.	0	13800	13800
		44000/yr x 10% X 12 mos.	0	4400	4400
		71000/yr x 10% X 12 mos.	0	7100	7100
		62000/yr x 15% X 12 mos.	0	9300	9300
		TOTAL SALARIES AND WAGES		**124550**	**124550**

Salaries and Wages (Temporary Staff)

Name/Title	No.	Method of Cost Computation	IMLS	Applicant	Total
[redacted]	1	annual salary at $12/hr	24960	0	24960
	4	4 hrs/day x 5 days/wk x 52 weeks/yr x $10/hr	41600	0	41600
		TOTAL SALARIES AND WAGES	**66560**	**0**	**66560**

Fringe Benefits Rate		Salary Base	IMLS	Applicant	Total
11 % of		41600	4576	0	4576
33.95 % of		149510	$8,474	$42,285	$50,759
		TOTAL FRINGE BENEFITS	**$13,050**	**$42,285**	**$55,335**

Consultant Fees

		IMLS	Applicant	Total
	TOTAL CONSULTANT FEES	**0**	**0**	**0**

Travel		IMLS	Applicant	Total
	TOTAL TRAVEL COSTS	**0**	**0**	**0**

Materials, Suuplies and Equipment

Item	No.	Method of Cost Computation	IMLS	Applicant	Total
Electrovaya Scribbler tablet PC	1	quoted price, CDW	2500		2500
Prorated support for tablet PC		prorated based on MPM IS support level agreements		2000	2000
HP StorageWorks 700ux 2 UDO optical jukebox image server	1	quoted price, CDW	11,040		11040
Prorated support for image server		prorated based on MPM IS support level agreements		3000	3000
(NB: Per MPM policy all computer acquisitions must include support costs)					
		TOTAL MATERIALS COSTS	**13,540**	**5000**	**18540**

Services

Item	Method of Cost Computation	IMLS	Applicant	Total
Separation, replication and maintenance of image files on jukebox and image archive	assumes 125,000 imaged cards at roughly $.065/image		8000	8000
	TOTAL SERVICES	**0**	**8000**	**8000**

Other				
	TOTAL OTHER	0	0	0

TOTAL DIRECT PROJECT COSTS	IMLS	Applicant	Total
	93,150	179,835	272,985

Indirect Costs

Federally Negotiated Indirect Cost Rate, Agreement Signed 3/21/2000
National Science Foundation (NSF)

Rate Base Amount	**33.8**	**% of**	**272,985**	**=**	**$92,269**

TOTAL INDIRECT COSTS	IMLS	Applicant	Total
	$31,485	$60,784	$92,269

PROJECT BUDGET FORM
SECTION 2: DETAILED BUDGET

Milwaukee Public Museum
Digitization of Anthropology Collections Catalogues

Year 2

Salaries and Wages (Permanent Staff)

Name/Title	No.	Method of Cost Computation	IMLS	Applicant	Total
[redacted]		85000/yr x 30% X 1.5 mos.	0	$3,188	$3,188
		71000/yr x 30% X 1.5 mos.	0	$2,663	$2,663
		50000/yr x 25% X 1.5 mos.	0	$1,563	$1,563
		77000/yr x 25% X 1.5 mos.	0	$2,406	$2,406
		38000/yr x 30% X 1.5 mos.	0	$1,425	$1,425
		46000/yr x 30% X 1.5 mos.	0	$1,725	$1,725
		44000/yr x 10% X 1.5 mos.	0	$550	$550
		71000/yr x 10% X 1.5 mos.	0	$888	$888
		62000/yr x 15% X 1.5 mos.	0	$1,163	$1,163
		TOTAL SALARIES AND WAGES		**$15,569**	**$15,569**

Salaries and Wages (Temporary Staff)

Name/Title	No.	Method of Cost Computation	IMLS	Applicant	Total
[redacted]	1	monthly salary at $12/hr x 1.5 mos.	2880	0	2880
	4	4 hrs/day x 5 days/wk x6 weeks x $10/hr	4800	0	4800
		TOTAL SALARIES AND WAGES	**7680**	**0**	**7680**

Fringe Benefits

Rate		Salary Base	IMLS	Applicant	Total
11 % of		4800	$528	$0	$528
33.95 % of		18448.75	$978	$5,286	$6,263
		TOTAL FRINGE BENEFITS	**$1,506**	**$5,286**	**$6,791**

Consultant Fees

		IMLS	Applicant	Total
	TOTAL CONSULTANT FEES	**0**	**0**	**0**

Travel

	IMLS	Applicant	Total
TOTAL TRAVEL COSTS	**0**	**0**	**0**

Materials, Suuplies and Equipment

Item	No.	Method of Cost Computation	IMLS	Applicant	Total
		TOTAL MATERIALS COSTS	**0**	**0**	**0**

Services

Item	Method of Cost Computation	IMLS	Applicant	Total
	TOTAL SERVICES	**0**	**0**	**0**

Other					
	TOTAL OTHER			0	0	0

TOTAL DIRECT PROJECT COSTS	IMLS	Applicant	Total
	9,186	20,854	30,040

Indirect Costs

Federally Negotiated Indirect Cost Rate, Agreement Signed 3/21/2000
National Science Foundation (NSF)

Rate Base Amount	33.8	% of	30,040	=	10,154

TOTAL INDIRECT COSTS	IMLS	Applicant	Total
	3,105	7,049	10,154

BUDGET JUSTIFICATION

SALARIES AND WAGES

Costs for data-entry technicians are based on current rates for Museum Technicians working on federally-supported grants within MPM's Collections and Research Division (in this case on IMLS-funded CP grants in the Botany Department). Number of hours are based on preliminary tests indicating a data entry rate of ca. 30 cards/hr with acceptably low rates of error. Based on these data the data entry tasks should be completed within 13 months. Costs for the lead data entry technician are based on established salaries for full-time staff; the hourly rate is 20% higher and the position carries a full benefits package. The Milwaukee Public Museum is unionized environment, and all temporary employees hired for this project would be represented by the museum's employee union.

[redacted] will coordinate the project as a whole, both in terms of staff responsibilities relating to the project, and arranging non-project staff coverage to release staff for these duties. [redacted] will also facilitate communication between the data entry and data verification groups, and with the Lead Data Entry Technician will arrange periodic reviews to assess progress and make any necessary course corrections. [redacted] will provide error-trapping and data validation throughout the project. [redacted] will coordinate the staff data validation and error-trapping efforts, while the lead data entry technician coordinates the initial keystroke error trapping. Specific staff have been selected for this portion of data verification and validation because of their experience with and knowledge of the Anthropology collections catalogues. [redacted] of the History Department, for example, has twice served as Department Chair in Anthropology, worked for many years in the Section, and is better-versed than anyone on staff on certain vagaries in how archaeological collections (especially those which might have been viewed as either historical or archaeological in character) may have been recorded. These individuals constitute the professional staff of the Museum with advanced content knowledge and training in Anthropology. The relative percentages of time each can spend on the project reflect other ongoing responsibilities within the institution. As Collections Manager, for instance [redacted] would normally play a proportionately greater role in data conversion and cataloguing. She also serves as coordinator of the Museum's intern program and the MPM/UWM Museum Studies Program, as well as remaining responsible for cataloguing newly acquired materials into KE EMu on an ongoing basis. [redacted] IS Director, will provide the setup of data entry screens, computer workstations, and support of the KE EMu CMS for both data entry and validation, as well as supervising the relational edit-check procedures. The Web Designer will support publication of selected fields, records and images to the web, as well as evaluation and assessment of the web access modules to better meet user needs.

Because this project has been identified as a high strategic priority for the Museum, the amounts of staff time dedicated to the project are not excessive. The institution views this project as an investment which will pay dividends in many different areas for years to come—not least by freeing up considerable staff time for other tasks once electronic catalogue data become available and accessible.

FRINGE BENEFITS

Fringe Benefit costs reflect standard benefit rates offered to all staff. Part-time fringe benefit rates are currently 11%, full-time benefit rates are 33.9%.

MATERIALS, SUPPLIES AND EQUIPMENT

Equipment costs are modest, and reflect the addition of only two items: 1) a tablet PC to allow record update and limited data entry in collections areas; and 2) a magneto-optical jukebox drive to act as image server for the data created and made accessible through the proposed conversion. The tablet will be used in the

resolution of cataloguing ambiguities by checking actual objects on display or in basement storage areas, capturing and annotating working images to supplement the catalogue data, and to support the data verification portion of the project. Costs are for an Electrovaya Scribbler SC-2100. This unit was selected because it has integral wireless connectivity and a battery life several times longer than competing models.

As noted below (*Services*) MPM's Technology Plan calls for all images to be stored in three separate locations—one as an uncompressed archival backup, one as a high resolution image stored to separate media for use, and one as medium resolution compressed images for web-based use and access. A variety of media are available for permanent, non-accessible archiving, but to allow rapid access to large images collections an image server is required. Magneto-optical drives offer the mass storage, swappable cartridges and long MTBF rates needed for high-quality image accessibility, with current archival life of 100 years or better. Costs are for a HP StorageWorks 700ux 2 UDO (ultra-density optical) magneto-optical jukebox drive, which offers between 80,000-100,000 MTBF reliability and 720gB storage capacity.

As noted previously, MPM has already made significant investments in this project, but because these expenses were incurred before the project period they do not appear as hard-cash matches. These includes acquisition, installation, configuration of (and on-site staff training in) the KE EMu CMS, a series of digital camera bodies and camera backs to acquire images, and increased computer hardware capacity and network infrastructure. The data-entry computers used by the additional temporary staff are another example; while necessary for the project they do not appear as a match because their acquisition predates the project period.

SERVICES

As noted in Attachment 3, images generated as part of this project, whether as images of collections objects or scanned image copies of the collections catalogue cards, will be maintained using archival procedures recommended by the Northeast Document Conservation Center's School for Scanning. One set of archival, uncompressed images will be maintained as an archive. A second set will be accessible for use, generally in order to create copies accessible by server. Most such copies will be compressed (usually JPEG), with compression rates varying by topic and need. Costs in this category are estimates by the IS Director based on the per-card costs of generating these duplicate files, establishing the permanent archived versions, and making the accessible compressed and uncompressed versions available on the optical jukebox. Technically these are ongoing costs, and once the back-catalogue has been converted ongoing costs (for a few hundred rather than more than a hundred thousand records) will be covered by annual operating budgets.

OCR is not proposed, instead the card images will serve as raw-data backups showing the content of the original cards while allowing the paper-based cards to be retired and conserved.

INDIRECT COSTS

Indirect cost rates reflect current federally-negotiated indirect cost agreements. The most recent such agreement was concluded with the National Science Foundation, dated 3/21/2000, and set the indirect cost rate at 33.8%

Specifications for Projects Involving Digitization

This form must be included if project involves digitization of collections or records for internal or external purposes.

1. Describe types of materials to be digitized (i.e., artifacts, maps, manuscripts, photographs, audio recordings, video recordings, motion pictures) and number of each:

Anthropology collections catalogues numbering roughly 125,000 records, currently in the form of 3x5 paper cards; as these are completed additional images and ancillary data regarding the anthropological collections objects referenced by the paper-based catalogues will be added to the CMS.

2. Identify copyright issues and other potential restrictions:

☑ Public Domain 100 % of total ☐ Permissions have been obtained ____% of total

☐ Permissions to be requested ____% of total – Plan to address: _____

(NB; materials are either in the public domain or rights are held by MPM)

☐ Privacy Concerns ____% of total – Plan to address: _____

☑ Other - Explain: For some anthropological objects and related records, issues of cultural sensitivity may restrict certain uses; these are identified and resolved through consultation with native communities

3. List the equipment, with specifications, whether purchased, leased, or outsourced, that will be used (e.g., camera, scanner, server): please see Attachment 3; Technical Aspects of Anthropology Catalogue Conversion, particulalrly Section 3.1.5; Technical Background

4. Specify each type of file format (e.g., TIFF, JPEG) to be produced and anticipated image quality of each (minimum resolution, depth, tone, pixels) :

☑ Master TIFF uncompressed

☑ Access TIFF uncompressed; JPEG general web access

☑ Thumbnail JPEG

☐ Formats for other media (e.g., audio, video, motion picture), include sampling rates, if applicable ____

See Attachment 3, Section 3.1.3 Imaging Standards

5. Describe 1) the delivery medium that will be used and 2) the digital access management system or systems that will be used to make this material available to others. Data will be accessible via on-site CMS (KE EMu Collections Management System), with selected records and fields published to the web via KE EMu. All records will be available, except those restricted for reasons of cultural sensitivity (see above, 2)

6. Describe the quality control plan: Please see Attachment 3; particularly Section 3.1.2 Quality Control and Error Trapping.

7. Estimate cost per image. Include costs such as scanning, quality control and indexing. Indicate the basis for calculation: Initial cost per card will be high (>$3/card), including all support and soft costs, but will continue to drop as additional records are added. Calculation based on total costs/number of records.

8. Explain how content will be discovered through metadata, including which standards you will use (e.g., MARC, EAD, Dublin Core): KE EMu is CIDOC, Dublin Core, and Spectrum/MDA compliant; data will also be ODBC and XML compliant

9. Describe plans for preservation and maintenance of the digital files during and after the expiration of the grant period (i.e., storage systems, migration plans, and funding): See Attachment 3; Section 3.3 Storage, Maintenance and Protection of Data

10. If you are producing collection-level records, describe plans for submitting collection-level descriptive records to a bibliographic utility, such as Research Libraries Information Network (RLIN) or Online Computer Library Center (OCLC): Collection-level descriptive records will be made available based on plans developed in consultation with IMLS staff, if appropriate

11. Describe plans for submitting information about the project to a national level registry of digital resources, such as the Association of Research Libraries' Digital Initiatives Database (http://www.arl.org/did/) or OCLC's Cooperative Online Resource Catalog (http://www.oclc.org/corc): MPM wi;ll consult with IMLS staff to determine the most effective and efficient methods of providing projeect information to national level registries

12. Provide URL(s) for applicant's previously-digitized collections: n/a